# Ozone

#### What is ozone?

Ozone is a gas that occurs both in the Earth's upper atmosphere and at ground level. Ozone can be "good" or "bad" for people's health and for the environment, depending on its location in the atmosphere.

In the troposphere, the air closest to the Earth's surface, ground-level or "bad" ozone is a pollutant that is a significant health risk, especially for children with <u>asthma</u>. It also damages crops, trees and other vegetation. It is a main ingredient of urban smog.

Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents as well as natural sources emit NOx and VOC that help form ozone. <u>Ground-level ozone</u> is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form in harmful concentrations in the air. As a result, it is known as a summertime air pollutant.

Oftentimes people get confused about ozone because there are two different types. The "Bad" is close to the ground and the <u>"Good" ozone</u> occurs naturally in the stratosphere approximately 10 to 30 miles above the earth's surface and forms a layer that protects life on earth from the sun's harmful rays.

#### Why is ozone a summer air challenge?

Ground-level ozone pollution is formed when emissions from everyday items combine with other pollutants and "cook" in the heat and sunlight. Sources of such emissions include local industry, gasoline and diesel-powered vehicles and lawn equipment, and household paints, stains and solvents.

Weather plays a key role in ozone formation. The highest ozone levels are usually recorded in summer months when temperatures approach the high 80s and 90s and when the wind is stagnant or light.

### How does ozone affect my health and the health of my family?

At ground level, ozone pollution is harmful to all of us, especially the young and elderly. Ozone can also trigger attacks and symptoms in individuals with pre-existing health conditions, such as <u>bronchitis</u>, <u>emphysema</u>, asthma or other respiratory infections. Even for those individuals considered healthy, breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. Ground-level ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue.

High levels of ozone pollution often affect healthy people who work or exercise outdoors and can cause breathing difficulties, eye irritation and reduced resistance to lung infections and colds with exposure for prolonged periods. It can worsen pre-existing health conditions for many individuals with various respiratory illnesses.

#### What are possible health effects due to high ozone levels?

People with lung disease, children, older adults, and people who are active can be affected when ozone levels are unhealthy. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including:

- lung irritation that can cause inflammation much like a sunburn;
- wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities;
- permanent lung damage to those with repeated exposure to ozone pollution; and
- aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

## Does ozone threaten Shelby County's air status?

Every year due to the nature of summer heat in Memphis, ozone levels can be high with the combination of weather trends, plus vehicle and industrial emissions which causes a problem in meeting Environmental Protection Agency (EPA) standards.

The Mid-South Clean Air Coalition is an open gathering of public and private organizations working collectively to improve local air quality. The Memphis and Shelby County Health Department Air Pollution Section and state and federal agencies work in concert with the Coalition to focus on two primary areas,

- Compliance and
- Public Outreach.

The Clean Air Coalition is asking citizens to take care of their summer air by making voluntary changes in behavior to ensure that Shelby and Crittenden County have clean air and meet federal air quality standards.

On April 15, 2004, Shelby County, Tennessee and Crittenden County, Arkansas were designated "non-attainment" areas, meaning they did not meet new federal guidelines for air quality. Non-attainment status restricts a county's efforts in recruiting new industry and may also hamper or discourage transportation and road-building projects. This can be turned around with everyone's help including industry, transportation and the general public in reducing air pollution emissions.

## What can I do to prevent ozone pollution?

Ozone season runs from April through September. During this time, the Clean Air Coalition will work with meteorologists at the Memphis and Shelby County Health Department to issue "Ozone Action Alerts," notifying the public when ozone levels could potentially reach unhealthy levels. During an ozone action alert, you can make a special effort in taking some simple actions including:

- 1. Stop at the click do not overfill gas tanks when refueling.
- 2. Keep vehicles regularly maintained.
- 3. Tighten gas caps after refueling.
- 4. Mow your grass in the evening.
- 5. Refuel your vehicle in the evening.
- 6. Use new earth friendly lawn equipment such as electric or manual.
- 7. Turn your vehicle off when idling for more than 30 seconds.
- 8. Share a ride by carpooling or vanpooling. Call (901) 544-7741 for assistance.
- 9. Combine all your errands in one single trip. Plan ahead!

By taking these actions, you can help keep the Shelby and Crittenden County region a healthy clean community in which to live, work and play.